

HHS & NIEHS Activities Related to Hydraulic Fracturing and Natural Gas Extraction

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HHS Contributions to Multiagency Collaboration on UOG Research

- HHS not a member of the UOG Steering Committee (DOI, DOE, EPA)
- HHS Agencies (NIEHS, NIOSH and ATSDR) are actively contributing comments to the Multiyear Research Plan
 - **UOG Technical Working Group** focusing on “Human Health” impacts

Identified Human health research needs have focused on:

- Worker Safety & Health
- Exposure Assessment
- Toxicology
- Direct Health Effects from potential changes in air & water quality
- Indirect Community Effects associated with the impacts of UOG activities.
 - e.g. traffic, socioeconomic factors, health care infrastructure

Some NIOSH Activities Related to Hydraulic Fracturing (HF)

- **OIL & GAS Extraction Program** (<http://www.cdc.gov/niosh/programs/oilgas/default.html>)
 - High Quality Research, Practical Solutions, Partnerships, Research to Practices
- Field Efforts to Assess Chemical Exposure Risks
 - 11 sites in six states, worker exposures to respirable crystalline silica is a significant health hazard, typically exceeding the NIOSH Recommended Exposure Level (REL).
 - OSHA/NIOSH joint Hazard Alert on Silica Exposures during Hydraulic Fracturing. (NIOSH pub #2010-130 at <http://www.cdc.gov/niosh/docs/2010-130/>)
- Studies to Assess Effects of Inhaled Fracking Fluid:
 - Animal studies looking at pulmonary and other organ health effects.
- Exposure Assessment in Oil and Gas Workers.
 - Proposal: thoroughly evaluate & characterize personal exposures and identify potential health risks that may arise from a variety of activities.
- NIOSH Program Opportunities for Research
 - Health Hazard Evaluation (HHE) Program
 - Fatality Assessment and Control Evaluation (FACE) Program

Some ATSDR Activities Related to Hydraulic Fracturing

- **May 3, 2012 Statement:** *CDC and ATSDR do not have enough information to say with certainty whether natural gas extraction and production activities including hydraulic fracturing pose a threat to public health. We believe that further study is warranted to fully understand potential public health impacts.*
- Review the science and solicit expert and stakeholder feedback to better define framework for research and public health response
- Coordinate with Federal, State, and Local Partners
 - Support EPA on efforts to understand risks through ongoing meetings & discussions
 - Environmental Public Health Surveillance/Tracking – funds 11 states with shale reserves.
 - Congressional encouragement to develop community health data and monitor impact of current & future drilling sites.
 - Developing partnerships for health studies or examining and/or tracking reported symptoms and health effects that may be associated with hydraulic fracturing.
- ATSDR continues to provide health evaluations concerning exposures through Health Consultations and Technical Assists
 - Examples: LeRoy , PA; Pavillion, WY; Dimock, PA; Williston, ND; Posey County, IN

NIEHS: General Activities Related to Hydraulic Fracturing

- Participation in meetings & conferences to understand issues & activities at the federal, state, and local levels.
- Promotion of scientific discourse related to health effects

April 30-May 1, 2012 Institute of Medicine (IOM) Roundtable Workshop

- Explored health impacts and the use of Health Impact Assessments (HIA's) to examine and identify ways to mitigate potential health impacts. Discussions included:
 - Worker health and exposures
 - Consequences of development
 - Community health and economic impacts
 - Environmental air and water considerations

<http://www.iom.edu/Activities/Environment/EnvironmentalHealthRT/2012-APR-30.aspx>

NIEHS: Extramural Activities related to Hydraulic Fracturing

- Community Outreach and Engagement Cores Activities on HF
 - October 2011 Webinar organized by Core Centers in Rochester and Galveston
 - March 2012 session at annual Center Directors meeting
 - Initial exploration of research ideas-work group created
 - Development of educational materials, workshops in several centers located near operations
 - July 2012 Webinar Partnerships for Environmental health Program (PEPH)
“Hydrofracking and Environmental Public Health”
 - to promote interactions among grantees and environmental health stakeholders and to increase understanding of research and communication gaps
- <http://youtu.be/y0xxDqeMc6g>

NIEHS: Extramural Funding Activities Related to Hydraulic Fracturing

- Time Sensitive Funding Opportunity Announcements & unsolicited applications (R03)
 - PAR's 10-084 and 10-084
 - Proposals focused on exposures, asthma, pregnancy in OH, PA, and CO
- Research to Action: Assessing and Addressing Community Exposures to Environmental Contaminants (R01)
 - PAR 10-12-153 identified hydraulic fracturing as a topic of interest
- Response to the EHS Core Center Opportunity Fund Announcement.
 - Award to University of Rochester COEC project titled “Health and Hydrofracking.”
 - Focus baseline data about the community's sources of, and needs for, information prior to the start and development of hydrofracking in NC, NY, and OH.
 - Support for bidirectional communication & community involvement in developing research agendas.

NIEHS: National Toxicology Program (NTP) Activities Related to HF

- Alerted to community concerns about chemicals in extraction fluids and groundwater contaminants
- Conducting preliminary scoping activities
- Held seminar November 2011
- Reviewing available monitoring data & lists of publicly disclosed information concerning hydrofracking fluids
- Developing research on long term effects of acute & chronic H₂S exposure
- Developing research questions

NIEHS: Examples of proposed & identified research needs

- Baseline measures of exposure & health status (incl. biospecimens & biomarkers)
- Representative epidemiology studies of various geologies & approaches
- Toxicology studies looking at fracking fluids & complex mixtures
- Risk assessments that include mixed & cumulative exposures
- Health Impact Assessments of affected communities
- Disproportionate impacts on communities (env. justice, at-risk populations)
- Robust Exposure Assessment
 - Levels of hazardous compounds (eg CrVI, diesel fuel, crystalline silica) in water & air
 - Mobilization of natural occurring hazardous compounds including radionuclides
 - Other chemicals to be monitored & needed levels of sensitivity of measurements
 - Composition and environmental fate of flowback water

Thank you!



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- How risky is fracking?
 - What are the potential hazards?
 - Are there ways to reduce their likelihood?
 - “Many questions remain unanswered as scientists scramble to catch up with the boom in drilling for natural gas. All energy sources bring environmental impacts, and whether fracking’s risks outweigh benefits isn’t clear. Ultimately, that’s as much a question of economics, politics, and philosophy as it is of science. **But its crucial that science has a place in that discussion”.**

— Eva Emerson, Acting Editor in Chief Science News